

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

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| In the Matter of |) | |
| |) | |
| Reassessment of Federal Communications |) | |
| Commission Radiofrequency Exposure |) | ET Docket No. 13-84 |
| Limits and Policies |) | |
| |) | |
| Proposed Changes in the Commission's |) | ET Docket No. 03-137 |
| Rules Regarding Human Exposure to |) | |
| Radiofrequency Electromagnetic Fields |) | |

To the Commission:

**COMMENTS OF JAMES EDWIN WHEDBEE, M.P.A., M.Ed.
ON THE FURTHER NOTICE OF PROPOSED RULEMAKING AND NOTICE OF INQUIRY**

COMES NOW the undersigned, JAMES EDWIN WHEDBEE, who pursuant to Section 1.415 of the Commission's rules and regulations (47 CFR §1.415) respectfully offers his following comments in response to the Commission's First Report and Order, Further Notice of Proposed Rulemaking, and Notice of Inquiry, FCC 13-39, released March 29, 2013 ("Notice" hereinafter). For reasons stated in these comments, the undersigned informally requests, pursuant to Section 1.41 of the Commission's rules and regulations (47 CFR §1.41) that Section 97.13(c) of the rules and regulations remain unchanged.

I. INTRODUCTORY MATTERS

1. The undersigned has been licensed since age twelve (12) having received his Novice Class Amateur Radio license, KA0MLG, on October

- 23, 1981. This is significant in that the Commission has received remarks in 2012 suggesting that longitudinal studies of RF field effects in youth is not well studied, and that such remarks are – at least in part – the predicate for the Commission advancing these issues on its dockets.
2. The undersigned has been a commercial radio operator since 1986.
 3. The undersigned served in the U.S. Army Signal Corps as part of the 13th Signal Battalion from 1989-1992, repeatedly field testing and operating equipment generating RF fields before, during, and after the first Persian Gulf War.
 4. The undersigned has owned two (2) broadcast facilities from 1994-1998 and 2009-2013.
 5. The undersigned is licensee of GMRS, Business/Industrial, Aviation, Marine, Experimental, and other communications facilities in addition to being an amateur radio operator.
 6. The undersigned is acquainted with the Commission's RF Exposure guidelines currently in force and meets those requirements with his facilities now.
 7. The undersigned has read the Commission's Notice in its entirety, is acquainted with it and its predicates, and is an interested party in and to these proceedings; accordingly, the undersigned has standing to comment and participate.

II. GENERAL OBSERVATIONS AND COMMENTS

8. Given the Commission's remark in paragraph six (6) of the Notice that it *"is not a health and safety agency,"* I defer to the wisdom of the federal government's own "health and safety agency" in generating these my general observations and comments. The Occupational Safety and Health Administration (OSHA) has determined (<http://www.osha.gov/SLTC/radiofrequencyradiation/>) that: *"The exposure limit in this standard (10 mW/sq. cm.) is expressed in voluntary language and has been ruled unenforceable for Federal OSHA enforcement. (comment to 29 CFR §1910.97)"*
9. Undoubtedly, it is equally valid that – assuming a licensee understands the standards the Commission is currently considering – licensees may need to reevaluate their facilities, record that reevaluation, and put up signage regarding RF exposure nearby; however, aside from these requirements, little of the Commission's current proposal will be enforceable.
10. Apart from "sophisticated licensees" (commercial telecommunications common carriers, broadcast conglomerates, etc.) with the resources and means to have complex environmental assessments of their facilities conducted, the vast majority of licensees and other operators of RF transmitting equipment will likely be ordinary

citizens or small businesses with little understanding or appreciation for what the Commission is proposing within its current Notice; accordingly, it is impossible a “full record” can be developed without making these proceedings more comprehensible to these average licensees, and it is inappropriate for the Commission to suggest a “one size fits all” single standard for RF exposure that lumps licensees such as brand new amateur radio (or GMRS) licensees in with telecommunications giants like AT&T.

11. The Commission really fails entirely to address within its Notice the question of how to address these exposure standards within the context of whole body exposure versus any part of the body. For example, the Commission uses charts which express a distance of 0.5 to 20 centimeters with RF limitations expressed. These distances are from what? Does the Commission consider these “average distances” from the body, exact distances from any one part of the body, etc.? How do ordinary licensees interpret these distances? By way of example only (and not by way of limitation), while RF exposure might be exceeded at the fingertips of a radio operator, it may be negligible with respect to a radio operator's entire body when averaged and taken as a whole. When applied to citizens using cellphones, it is questionable whether mobile devices of any kind need to be considered because the total body exposure to RF is negligible. The

same could be said of amateur radio, GMRS, and a host of other radio services; therefore, the undersigned sees no alternative but to maintain the status quo with regard to specific radio services having their own separate environmental standards.

12. In the context of typical licensees, and in particular regard for amateur radio and GMRS licensees, which standard must a licensee meet for that licensee's in-home employees such as maids, cleaners, lawncare staff? Does the Commission believe a maid or lawncare worker appreciates RF exposure any more than any other member of the general public? If not, how does a licensee ever meet the spirit of these standards without violating the letter of these standards? The point of these questions to the Commission in these comments is to illustrate how unenforceably ambiguous the suggested standards are and, therefore, how poor a "record" these proceedings are likely to generate. These, my "General Observations and Comments" apply to the entirety of these proceedings without limit. At least with the maximum permissible exposure (MPE) limits currently in force, a licensee has a chance to meet the requirements. This cannot be said of the proposed standards for specific absorption rate (SAR)-which a plain reading of which begs the question: "specific for whom?" Even the Commission concedes SAR adds a layer of complexity in its statement: *"Because of the impracticality of measuring for SAR within*

the body at a distance from a transmitter (sic.-intended to say "transmitting antenna")..." (para. 21 of Notice).

13. The general comments and observations are clearly relevant in the context of Part 15 equipment, wi-fi, and a host of other unlicensed devices which rely in whole or in part on RF emissions which come into direct contact with the body. Nearly all such devices would comply if the "whole body" context is adopted, but with limitations expressed as maxima for a particular part of the body, the regulatory burden becomes a practical impossibility and it is self-evident that the proposed RF exposure standards will be utterly unenforceable in any context other than egregious violations. Accordingly, I close these general observations and comments where I began: if OSHA believes its standards are unenforceable, it stands to be just as true that the Commission (which is self-confessed not to be a safety and health agency) will have no greater success in their enforcement (apart from signage and record-keeping). For these reasons and those readily apparent herefrom, the remainder of my comments are limited to the Commission's invitation to the amateur radio community to offer comments in paragraph 138 of the Notice. That said, inasmuch as my "amateur radio specific" comments might hold true for other licensees in other radio services, I respectfully request the Commission hold that to be the case.

III. COMMENTS SPECIFIC TO AMATEUR RADIO

14. The undersigned has been an amateur radio operator since age 12. To date, the undersigned has suffered no health problems directly or indirectly attributable to exposure to radiofrequency or electromagnetic emissions/fields except for the occasional burn, the proximate cause for which was the undersigned's own negligence. This exposure has been more or less continuous throughout the period of 1981 to 2013, or thirty-one (31) years. This is particularly relevant because exposure to RF in youth is one of the main predicates for many organizations and doctors writing into the Commission to suggest its current enforcement standards are too limited.
15. I disagree with the Commission's proposal to delete Section 97.13(c) of the rules and regulations [47 CFR §97.13(c)]. The discussion in paragraph 138 of the Notice assumes that: "...since the existing amateur exemptions are based only on transmitter power and do not consider separation distance or antenna gain, exempt transmitting antennas that are unusually close to people could potentially lead to non-compliant exposure levels. For example, a separation distance of at least 24 feet would meet our proposed exemption criteria, considering a currently-exempt 50-watt transmitter at VHF in accord

with section 97.13(c) and assuming an antenna gain of 6 dBd.” The square-of-the-distance rule puts a 0 dBd antenna emitting 50 watts at 12 feet distance, although for mobile antennas on a highway, most lanes are 12 feet wide, and therefore, having amateur radio operators evaluate their stations gets to be tediously unnecessary. Given that most vehicles act as a Faraday cage at VHF frequencies (unless the windshields are unusually large), evaluation for the operator is likewise pointlessly tedious. The square root of 50 watts is 7 watts (more or less), so let’s assume a handheld VHF transmitter with 5 watts output power into a handheld antenna (with corresponding loss of efficiency – we will assume here a generous 50% efficiency of the antenna), so the ERP is 2.5 watts, which is less than the square root of 7 watts. This corresponds with a distance of 3 feet (12 divided by 2 for the attenuation from 50 watts to 7 watts, yielding 6 feet; 6 divided by 2 for the attenuation from 7 watts to 2.5 watts ERP, yielding 3 feet...assuming the square-of-the-distance rule). That’s 3 feet distance from what? Do we apply this standard to the head where the radio transmitter is nearest or the feet which are outside the “area of concern” for most operators. Assuming a radio operator with six feet stature, half their body is within the “area of concern” and half is not. Do we take the average and say we’re safe?

16. Antenna efficiency becomes a greater factor at lower frequencies.

A well-designed dipole antenna has a maximum efficiency of 94%. Most antennas are nowhere near this efficient; accordingly, does the Commission expect radio operators to include antenna efficiency in their calculations of effective radiated power (ERP)? If so, how does antenna efficiency correspond with a body's specific absorption rate (SAR) because the SAR standard, in essence, treats a human body as a receiving antenna? If it is safe to assume a human body is a receiving antenna for purposes of the proposed standards, shouldn't the efficiency of the human-as-antenna be considered before adopting these standards? Again, these are all factors which generally render the proposal unenforceable with regard to amateur radio operators. Any attempt at enforcement would undoubtedly wind up in years of protracted technical litigation with jurists comprised of laypersons in these matters, leading to no better outcome than the Commission's current RF exposure standards.

17. For these reasons, and those readily apparent herefrom, I strongly recommend the Commission leave in place Section 97.13(c) of its rules and regulations, as the maximum permissible exposure (MPE) requirements of the current regulations do better at tackling the foregoing questions than the proposed regulations.

18. The undersigned's General Observations and Comments reach the remaining questions in paragraph 138 of the Notice, and therefore won't be restate herein.

WHEREFORE, the undersigned respectfully recommends the Commission leave Section 97.13(c) of the rules and regulations without change.

Respectfully Submitted:



April 5, 2013

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